



SETFLUX PLUS LIQUID FLUIDIZING AGENT

- **PROPERTIES**

The SETFLUX PLUS has a double valence:

- They can be used as fluidizer of slips and glazes, in addition to the normal fluidizers or in partial/total substitution of sodium silicate. They increase the fluidity and stabilize the rheologic properties of slips and glazes;
- They increase the grinding performance during milling. A small addition of these products allows a better discharge of the mill reducing the viscosity and providing a good flowing behavior of grinded product.

- **TECHNICAL PARAMETERS**

CHEMICAL NATURE:	Organic Polymers
ASPECT:	Viscous liquid
VALUE PH:	6-8
SOLUBILITY:	Soluble in water
VISCOSITY:	150-300 cps
DENSITY:	1225-1245 g/cc
REFRACTION INDEX:	1400-1410

- **APPLICATIONS**

The product can be used for glazes and ceramic slips, no matter what the chemical composition is. The densities and other properties of the materials are not affected by the use of SETFLUX PLUS

- **DOSAGE**

The recommended dosage oscillates between the 0,02% and 0,09%, but we strongly recommended a previous laboratory test in order to choose the best dosage, before industrial use.

- **PRESENTATION**

Plastic drums of 25 or 120 Kg or 1.000 Kg.

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- **STORAGE**

Minimum 12 months under normal conditions. Avoid extreme temperatures of storage.

FURTHER INFORMATION ABOUT THE SETFLUX PLUS USE

In the Glaze

In the sanitary ware or table ware glazes the SETFLUXPLUS is mainly used in order to reduce the ball mills grinding time and unload the ball mill quickly.

The product should be introduced direct in the ball mill during the raw materials loading. It's better to introduce the SETFLUX PLUS dissolved in a little amount of water or directly during the water's loading.

The percentage is variable and depends for instance, to the glaze composition and the glazing parameters and normally is between 0.02% and 0.09%.

In order to understand well the quantity it's necessary to proceed at some laboratory's tests and semi-industrial tests.

The SETFLUX PLUS can be used also during the glaze preparation as remedial for Viscosity and Tixotropy correction. In this case the additions are little and progressive until the required parameters. In this case its better do not exceed in the quantity in order to avoid problems of glaze sliding during the application (especially spray applications).

In the slip

The SETFLUX PLUS in the slip can be used as partial or total substitution of standard deflocculants (as sodium silicate).

Compared to the effect of Sodium Silicate (the most used deflocculating agent), the action of SETFLUX PLUS is stronger, slower and the final slip is more stable during the aging.

The percentage used in the slip preparation is estimated between 0.03-0.09%.

The wide range is due to the type of raw materials used for the slip preparation and the rheologic characteristics required.

The empirical ratio for the substitution silicate - SETFLUX PLUS is 2:1. It's means that normally 2 parts of silicate are replaced by 1 part of SETFLUX PLUS. In any case as usual, before to make some laboratory and semi-industrial tests in order to understand which is the right percentage for the production use.

One important difference between SETFLUX PLUS and the silicate is the action time. The SETFLUX PLUS need a little more aging than the silicate, but when the action is completed the resultant rheologic parameters are more stable at the further aging.

For this reason it's correct to unload the blunger or turbo-blungler, with a Viscosity/thixotropy higher than the normal.

Considering an average slip aging of 3-4 days and using the sodium silicate, it's necessary to unload the Blunger (turbo or standard) at Viscosity 270°G and Thixotropy 60-65°G.

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With the same aging time of 3-4 days but using the SETFLUX PLUS it's necessary to unload the blunger at Thixotropy 80-85°G in order to have the same final result.

Stability Advantages

As told, the action of SETFLUX PLUS is slower than the sodium silicate but when the action is completed, the final slip is more stable at the aging and the stirring stress.

As know the normal slip cannot be stored for a long time without renewing in order to avoid problems especially in the casting department.

This need is directly related to the effect of the stirring in the storage tank, which has as result a reduction of Viscosity and Thixotropy.

With the SETFLUX PLUS the stability is higher and the effect of aging/stirring reduced with big advantages in a type of production, as the ceramic, so sensitive to the changes.

Main Quality Advantages

The real advantages of SETFLUX PLUS use are resulting from the quality increasing:

The SETFLUX PLUS reduce the deformations typical with the use of sodium silicate. These deformations are especially positioned in the higher side of the pieces (considering the casting position) and appear after the firing as an area with different deformation. Sometime these deformations are so evident that the pieces have a reduction of the quality or at limit, cannot be sold.

With the SETFLUX PLUS these problem can be reduced with a quality gain for the product.

Another quality advantage with the SETFLUX PLUS use, is the more uniformity of the internal surface of the pieces during the draining, avoiding the slips layers in the free thickness parts. As know these layer are cause of waving of the surfaces during the firing.

Big reduction of the surface tension of the slip with consequent reduction of air bubbles in the casted pieces.

Major uniformity of the thickness formation and humidity content of the casted pieces with consequent increasing of the pieces firmness that allow an easier and correct drying.

The SETFLUX PLUS has can't cause problems of "over deflocculation" due to possible dosage errors of the sodium silicate. This is possible thanks to the dual fluidizing effect of this additive: Electrostatic effect that allow the slip particles to keep in separation with electrical charge given by the SETFLUX PLUS and Steric Spatial effect that form like a film around the particles keeping them separated.

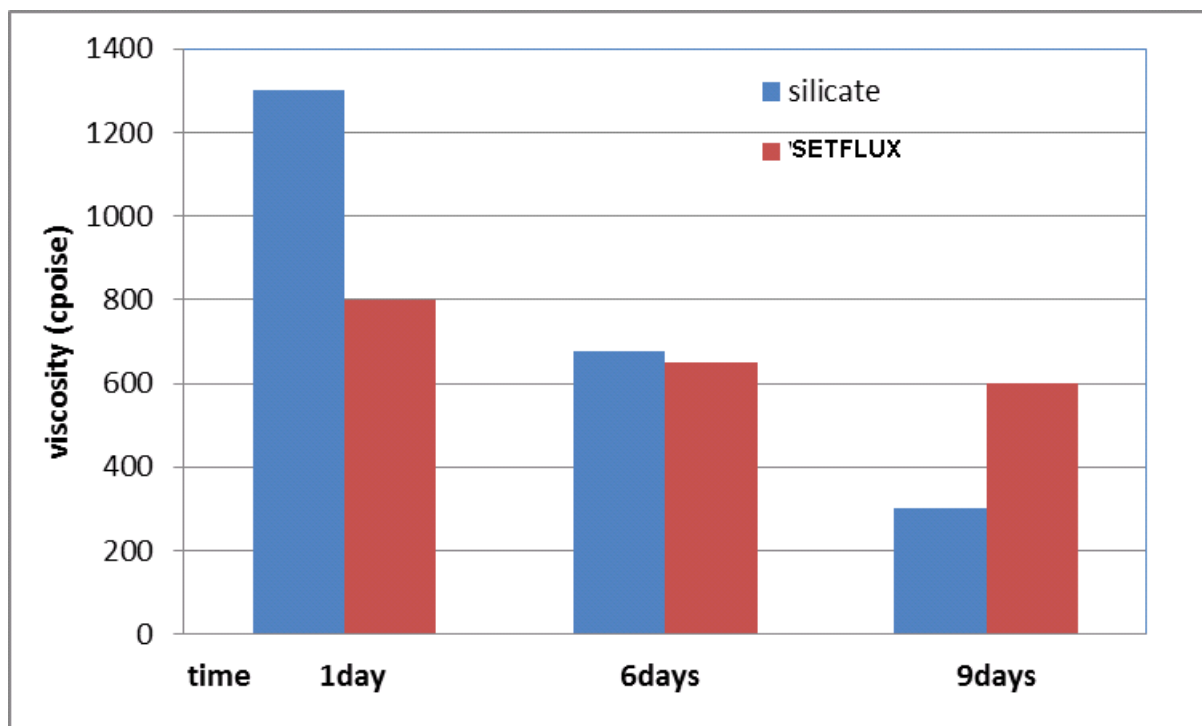


COMPARISON BETWEEN SETFLUX PLUS and SODIUM SILICATE

One of the main advantages of using the SETFLUX PLUS fluidizing agent is given by the big stability and steadiness of the viscosity level that it confer to the slip also for a long storage time. This is very important considering that normally the slip is casted after some day of homogenization and the return slip from the casting line is again introduced in the storage tanks.

The following graphics represent the results obtained with specific analysis of two samples of slips (with addition of SETFLUX PLUS and Sodium Silicate) and well show the big differences of s

Silicate	1300	675	300	275
SETFLUX PLUS	800	650	600	400
	1st day	6th day	9th day	12day



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The test has been run with a standard formula of Vitreous China slip mixing it for 5 min. before measuring the viscosity. Results are only indicative and of course viscosity level can change depending of specific weight of the slip, quality of raw material and working conditions.